

release notes

HP StorageWorks

Secure Path 4.0C Service Pack 2 for Windows and Windows Workgroup Edition

Product Version: 4.0C SP2

Seventeenth Edition (March 2005)

Part Number: T3037-98301

This document summarizes characteristics of HP StorageWorks Secure Path 4.0C SP2 for Windows and Windows Workgroup Edition. For the latest version of these release notes and other Secure Path documentation, access the HP storage web site at <http://www.hp.com/country/us/eng/prodserv/storage.html>.



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Seventeenth Edition (March 2005)

Part Number: T3037–98301

About this document

This document summarizes the features and characteristics of HP StorageWorks Secure Path 4.0C Service Pack 2 for Microsoft Windows and Windows Workgroup Edition, high-availability software solutions for use with:

- Enterprise Virtual Array (HSV100 and HSV110)
- Enterprise/Modular Storage RAID Array (RA/MA6000, RA/MA8000, ESA/EMA12000, and EMA16000)
- Modular Smart Array 1000 (MSA1000) and Modular Smart Array 1500 (MSA1500)
- VA and XP systems.

This section describes the content reflected in this document, including:

- [Release notes information](#), page 3
- [Related documentation](#), page 4

Release notes information

These release notes cover the following major topics:

- [Notes and corrections](#), page 5
 - [Fixes in this release](#), page 5
 - [Secure Path and Microsoft cluster servers](#), page 5
 - [Secure Path issues](#), page 6
 - [MSA1000/MSA1500 issues](#), page 7
- [Secure Path operational features](#), page 8
 - [Configuration information](#), page 8
 - [Configurations supported by Secure Path](#), page 9
 - [Secure Path install kit components](#), page 9
 - [Fibre channel configurations](#), page 10
 - [Dynamic load balancing in Microsoft cluster server environments](#)
 - [Recovering inaccessible disk devices](#), page 14

Related documentation

The Secure Path 4.0C Service Pack 2 (SP2) for Windows kit includes:

- *HP StorageWorks Secure Path 4.0C SP2 for Windows and Windows Workgroup Edition* installation and reference guide, part number AA-RL4SJ-TE
- HP StorageWorks Secure Path Manager HTML Help (accessible with the Web browser interface)
- *HP StorageWorks Secure Path Manager 4.0C* installation guide, part number AA-RRR4D-TE
- *HP StorageWorks Secure Path Manager 4.0C* release notes, part number T3037-98002

Additional documentation, including white papers and best practices documents, are available on the HP web site at <http://www.hp.com>.

Notes and corrections

Fixes in this release

Secure Path 4.0C SP2 incorporates all patches to earlier Secure Path 4.x versions. Specifically this release resolves the following issues:

- LUN movement across controllers through Secure Path Manager (SPM) fails when one of the preferred path for a logical unit fails.
- The `rdfil.sys` crashes when the system is running low on memory resources.
- Recovery of devices does not occur in Microsoft Cluster Server (MSCS) environment for grouped LUNs.

Secure Path and Microsoft cluster servers

Secure Path and HP ProLiant clusters

Before installing a HP ProLiant Cluster solution, it is important to refer to the HP Cluster Configuration Support web site for details on the components of a valid cluster configuration. The web site also contains a support matrix for each HP cluster, detailing the components of quality-tested and supported HP cluster configurations.

At the following web site, select the appropriate operating system and storage platforms, and then refer to the row of deliverables that is relevant to your configuration:

<http://h18022.www1.hp.com/solutions/enterprise/highavailability/answercenter/configuration-all.html>.

Information on ProLiant Clusters can be found at:

<http://h18004.www1.hp.com/solutions/enterprise/highavailability/index.html>.

ProLiant Cluster white papers, including installation checklists and migration papers, can be found at:

<http://h18004.www1.hp.com/solutions/enterprise/highavailability/whitepapers/index.html>.

Adding nodes to Windows server 2003 systems running Microsoft cluster server

When you add nodes to a cluster on MSCS running Windows Server 2003, the Setup Wizard may stop working during the Analyze phase. For detailed information, refer to <http://support.microsoft.com/?id=331801>.

Secure Path issues

- When commands affecting a LUN are sent to a Windows NT 4.0 host, the command may fail with a timeout error. Although this error occurs, the command has actually completed normally and you can view the updated status after the Secure Path Manager's refresh cycle.
- Auto Failback and Path Verification are always enabled for LUNs on XP/VA disk arrays.
- When both Path Verification and Auto Failback are enabled, Failback may not occur until I/O is performed on the LUN.
- On any one host, all Host Bus Adapters (HBA) must be of the same type and have the same settings when connecting to XP/VA disk arrays.
- Secure Path 4.0C SP2 does not support dynamic driver update. The server must be rebooted following an upgrade to this product from earlier versions.
- SPM passwords must be the same for all hosts in a profile.
- In a Windows NT 4.0 cluster, the failure or intentional shutdown of one node results in SPM losing the display of volume labels for assigned devices. To refresh the display you must restore the shutdown mode by taking the following steps on both servers:
 - Go to **Control Panel > Services**.
 - Stop and start the **Secure Path Agent**.
- System Event ID 515, which indicates the restoration of a previously Failed path, may not be logged.
- Performance counters are not enabled for the `raidisk.sys` component of Secure Path.
- Silent installation is not supported by 64-bit Windows Server 2003.

MSA1000/MSA1500 issues

- To ensure driver compatibility with Secure Path 4.0C SP2, servers must use the MSA1000 or MSA1500 Support Software CD-ROM 6.51 or later, which contains MSA1000/MSA1500 firmware 4.x or later.
- Servers connected to MSA1000/MSA1500 systems require a second reboot following new 4.0C SP2 installations or upgrades from Secure Path 3.x.
- If Microsoft Windows 2000 Service Pack 3 is installed on your server, Disk Management may force you to perform an additional bus rescan when dynamically adding LUNs.

Secure Path operational features

Configuration information

Prerequisite drivers

StorageWorks RAID systems are generally installed with a Solution Software kit such as the Fibre Channel Installation kit. These kits install or update certain drivers necessary for using StorageWorks products with Windows.

For information about HBA drivers for the Windows Server 2003, refer to the HP web site at <http://www.hp.com/country/us/eng/prodserv/support.html>.

Operating system compatibility

Secure Path 4.0C SP2 is supported on platforms running the following operating systems:

- Windows NT Enterprise Edition or Server 4.0, Service Pack 6A
- Windows 2000 Standard Server or Advanced Server, with Service Pack 3 or Service Pack 4
- Windows Server 2003 (x86 and IA64)
- Windows Server 2003 with Service Pack 1 (x86 and IA64)

Cluster software compatibility

Secure Path 4.0C SP2 is supported on platforms running the following cluster software:

- Microsoft Cluster Server (MSCS)
- Oracle Parallel Server (OPS)

Supported storage system types

Secure Path 4.0C SP2 supports the following storage system types:

- Enterprise/Modular Storage RAID Array (RA/MA6000, RA/MA8000, ESA/EMA12000, and EMA16000) systems with StorageWorks HSG80 controllers and ACS 8.6 or 8.7
- Enterprise Virtual Array 5000 with StorageWorks HSV110 controllers and VCS 3.020
- Enterprise Virtual Array 3000 with StorageWorks HSV100 controllers and VCS 3.020

- MSA1000/MSA1500 controller with firmware version 4.x
- XP256, XP512, XP48, XP128, XP1024, and XP12000 disk arrays
- VA7100, VA7110, VA7400, and VA7410 disk arrays

Configurations supported by Secure Path

The following list defines operational configuration limits for Secure Path 4.0C SP2.

- Maximum 128 storage systems shared by a set of hosts (per profile)
- Maximum 128 hosts per set of shared storage systems (per profile)
- Maximum 256 LUNs per target (LUN numbers must be in the range 0 – 255)
- Maximum 32 paths per LUN on EVA/EMA/ESA systems
- Maximum 2 paths per LUN on MSA1000/MSA1500 systems
- Maximum 8 paths per LUN on VA and XP systems

Note: The effective limit may be less than shown due to Windows storage constraints, storage system type, or interconnect requirements.

Secure Path install kit components

The following Secure Path components are supplied in this release:

- RaiDisk.sys
 - Windows NT— v3.7.1.240
 - Windows 2000 — v3.7.2.540
 - 32-bit Windows Server 2003 — v3.7.2.540
 - 64-bit Windows Server 2003 — v3.7.4.540
- Rdfil.sys
 - Windows 2000 — v3.7.2.240
 - 32-bit Windows Server 2003 — v3.7.2.240
 - 64-bit Windows Server 2003 — v3.7.4.240

- Hpap.sys
 - Windows NT — v3.0.160.0
 - Windows 2000 — v3.2.130.0
 - 32-bit Windows Server 2003 — v3.2.130.0
 - 64-bit Windows Server 2003 — v3.2.130.0
- Secure Path Agent — v1.0.0.33
- HS_Service — v3.1.0.5

Fibre channel configurations

Refer to the *HP StorageWorks SAN Design* reference guide for configuration information about HBAs and Fibre Channel switch support. This document is available on the HP web site at:

<http://h18004.www1.hp.com/products/storageworks/san/documentation.html>

Dynamic load balancing in Microsoft cluster server environments

This section describes the Secure Path drivers, supported operating systems and storage arrays, and how to enable or disable dynamic Load Balancing in MSCS.

Table 1 defines the combinations of operating systems and storage arrays on which dynamic Load Balancing for clusters is supported.

Table 1: Dynamic load balancing support matrix for storage arrays

Operating system	hpap.sys		raidisk.sys			
	VA	XP	EVA5000	EVA3000	HSG80	MSA1000/M SA1500
Windows NT 4.0	Y	Y	Y	Y	Y	N
Windows 2000	Y	Y	Y	Y	Y	N
32-bit Windows Server 2003	Y	Y	N	N	N	N
64-bit Windows Server 2003	Y	Y	N	N	N	N

Note: Cluster Load Balancing is not supported on VA7100/7400 and XP256 systems.

Enabling and disabling dynamic Load Balancing for Microsoft cluster environments

When installed, the default setting for Secure Path drivers for dynamic Load Balancing is **off**. The installation copies Registry editing utilities to your system. You can use these utilities to enable the cluster dynamic Load Balancing feature at any time. You can enable and disable this feature for the two Secure Path drivers, `hpap.sys` and `raidisk.sys`, independently of each other.

Enable dynamic Load Balancing on MSCS as follows:

- For storage configurations that do not include XP or VA storage, use the following procedure to create the registry settings to enable Load Balancing. You can perform this step in conjunction with Secure Path Cluster installation procedures described in the *HP Storageworks Secure Path 4.0C Service Pack 2* installation and reference guide.



Caution: For storage configurations that include XP or VA arrays, ensure that all the nodes, that are a part of the Microsoft Cluster configuration have Dynamic Load Balancing turned **ON**.

To enable dynamic Load Balancing:

1. Double-click on the following files:

- For EVA arrays on Windows NT 4.0:
`<installdir>\SPDriver\sppr_on.reg`
- For EVA arrays on Windows 2000:
`<installdir>\SPDriver\W2K\sppr_on.reg`
- For HSG80 arrays on Windows NT 4.0:
`<installdir>\SPDriver\sppr_HSG80_on.reg`
- For HSG80 arrays on Windows 2000:
`<installdir>\SPDriver\W2K\sppr_HSG80_on.reg`
- For XP and VA arrays on Windows NT 4.0:
`<installdir>\SPDriver\appr_on.reg`

- For XP and VA arrays on Windows 2000 and 32-bit Windows Server 2003:
`<installdir>\SPDriver\W2K\appr_on.reg`
 - For XP and VA arrays on 64-bit Windows Server 2003:
`<installdir>\SPDriver\NET\appr_on.reg`
2. Respond to the prompts and reboot the server so that this new registry parameter becomes effective.
 3. Enable Load Balancing from SPM.
- To disable dynamic Load Balancing:
1. Double-click on the following files:
- For EVA arrays on Windows NT 4.0:
`<installdir>\SPDriver\sppr_off.reg`
 - For EVA arrays on Windows 2000:
`<installdir>\SPDriver\W2K\sppr_off.reg`
 - For HSG80 arrays on Windows NT 4.0:
`<installdir>\SPDriver\sppr_HSG80_off.reg`
 - For EVA arrays on Windows 2000:
`<installdir>\SPDriver\W2K\sppr_HSG80_off.reg`
 - For XP and VA arrays on Windows NT 4.0:
`<installdir>\SPDriver\sppr_off.reg`
 - For XP and VA arrays on Windows 2000 and 32-bit Windows Server 2003:
`<installdir>\SPDriver\W2K\appr_off.reg`
 - For XP and VA arrays on 64-bit Windows Server 2003:
`<installdir>\SPDriver\NET\appr_off.reg`
2. Respond to the prompts and reboot the server so that this new registry parameter becomes effective.

Note: The variable `<installdir>` is the folder that you have selected during Secure Path installation.

Upgrading from a Windows 2000 cluster to Windows server 2003 with load balance enabled

This section describes:

- [Privileges required for upgrading](#)
- [Upgrade procedures](#)

Privileges required for upgrading

To perform any of the cluster upgrade procedures, your privileges for the computer must one of the following:

- You are a member of the Administrators group on the local computer.
- You have been delegated the appropriate authority. If the computer is a member of a domain, members of the Domain Administrators may be able to perform these procedures.

Note: If the cluster user account is not added to the Administrators group on the local computer, the node will not be able to rejoin the cluster after the operating system upgrade.

Upgrade procedures

To upgrade to Windows server 2003:

- If you are connected only to XP or VA storage arrays, follow the documented cluster upgrade procedure for Auto Path, as described in the *HP StorageWorks Secure Path 4.0C Service Pack 2* installation and reference guide.
- If you have an existing Windows 2000 cluster, but are not using dynamic Load Balancing, follow the *HP StorageWorks Secure Path 4.0C Service Pack 2* installation and reference guide.
- If you are connected to HSV or HSG arrays and you are using dynamic Load Balancing, use the following procedure upgrade from a Windows 2000 Cluster to Windows Server 2003 with Load Balance enabled:
 1. Backup your entire system configuration.
 2. Using cluster administrator, move all storage groups from one of the servers (server A in subsequent steps) to the other server (server B).
 3. Using cluster administrator, pause the cluster node you are upgrading.

4. Using cluster administrator, for all groups containing resources managed by Secure Path, go to **Resource Attributes** and disable failback, if enabled.
5. Use the following commands to run the utility program on Server A:
 - If you are connected to EVA arrays:
`<installdir>\SPDriver\W2K\sppr_off.reg`
 - If you are connected to HSG80 arrays:
`<installdir>\SPDriver\W2K\sppr_HSG80_off.reg`
6. Upgrade server A to Windows Server 2003.
7. Using Cluster Administrator, move all storage groups from server B to server A.
8. Use the following commands to run the utility program on server B:
 - If you are connected to EVA arrays:
`<installdir>\SPDriver\W2K\sppr_off.reg`
 - If you are connected to HSG80 arrays:
`<installdir>\SPDriver\W2K\sppr_HSG80_off.reg`
9. Perform the operating system upgrade on server B.
10. Using Cluster Administrator, restore failback settings, if necessary, and redistribute the LUNs across servers.

Note: The variable `<installdir>` is the folder that you have selected during Secure Path installation.



Caution: Failure to follow this procedure exactly could leave your SAN storage disk devices inaccessible to all servers.

Recovering inaccessible disk devices

Disk devices may be inaccessible due to failure to follow the appropriate procedure in [Upgrading from a Windows 2000 cluster to Windows server 2003 with load balance enabled](#) on page 13. If this occurs, the cause may be the strong reservation type (Persistent Reservations) used to support dynamic Load Balancing in clusters.

The Secure Path utility `spprutil.exe` releases persistent reservations. To run the utility, choose **Start > Programs > Secure Path > spprutil**. At the command prompt, enter `spprutil ?` to display instructions for using this utility.